

UTILITY APPLICATION

UNDER 37 CFR 1.53(B)

TITLE: AUTO-ADJUSTING FINGER INSERT FOR BOWLING BALLS

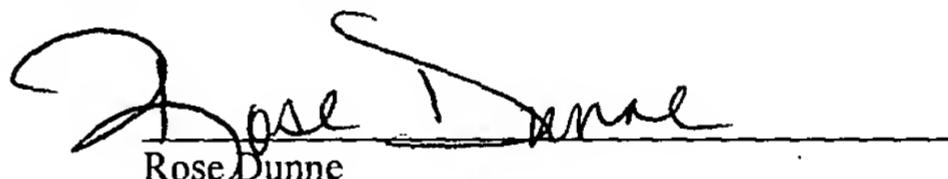
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Utility Application Transmittal Sheet and FY 2003 Fee Transmittal Sheet (2 pgs.); Cover Sheet (1 pg.) Specification (4 pgs); Claims (1 pgs.); Drawings Figures 4 (2 pgs.); Abstract (1 pg.); Declaration (2 pgs.); and Return Postcard.

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Dated: September 2, 2003


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Auto-Adjusting Finger Insert for Bowling Balls

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BACKGROUND OF THE INVENTION

1. Field of the Invention

[0001] The present invention generally relates to a finger insert to permit improved grip and, more particularly, to finger inserts for use in the holes of a bowling ball.

2. Description of Related Art

[0002] The precise fit of a bowling ball to a bowler's fingers has long been a sore spot in this popular sport. It stands to reason that a player's grip on the ball must be sure and secure so that the ball is correctly aimed and propelled down the alley. If the holes into which one inserts one's fingers to grip the ball are too large, the ball may well slip prematurely from one's grasp. The extra effort to hold on to a loose ball may be significant. But if the holes are too small, the player's fingers may become sore and bruised through repeated insertions into the holes. The ball may even hang on to the hand for a moment after release, resulting in further finger damage, as well as gutter balls.

[0003] As a result, the usual tradition for serious bowlers has been to obtain a custom-made ball in which the holes are drilled to match the bowler's fingers. Generally, such custom holes are available in 1/32-inch increments, making it possible to closely match the dimensions of a bowler's fingers. However, the human finger is not static. It may swell due to bruising, weight gain, or even to water retention. On the other hand, the finger may shrink due to weight loss. Fingers frequently change diameter during the

course of the day; perhaps being smaller in the morning and larger in the evening. In any case, a bowling ball hole that matches the fingers perfectly when it was first drilled may well be too large or too small at a later date. In fact, it is likely that the same hole will alternately be too large and too small.

[0004] Some bowlers attempt to solve the changing finger size problem by having more than one bowling ball, for example, one ball drilled for their fingers at their minimum size and a second ball drilled for the fingers at a maximum size. This solution is not very practical, particularly for a casual player who uses rental balls.

SUMMARY

[0005] The present invention aims to provide a simple and inexpensive bowling ball finger hole insert that provides a firm finger grip while automatically adjusting to accommodate changes in the bowler's finger size.

BRIEF DESCRIPTION OF THE DRAWINGS

[0006] The objects and features of the present invention, which are believed to be novel, are set forth with particularity in the appended claims. The present invention, both as to its organization and manner of operation, together with further objects and advantages, may best be understood by reference to the following description, taken in connection with the accompanying drawings, of which:

[0007] FIG. 1 shows a typical bowling ball equipped with inserts according to an illustrative embodiment invention;

[0008] FIG. 2 shows an elevational view of the inserts of FIG. 1 removed from the bowling ball; and

[0009] FIGS. 3 and 4 are respective end views of opposite ends of the insert of FIG. 2

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0010] The following description is provided to enable any person skilled in the art to make and use the invention and sets forth the best modes contemplated by the inventor of carrying out his invention. Various modifications, however, will remain readily apparent to those skilled in the art, since the generic principles of the present invention have been defined herein specifically to provide automatically-adjusting bowling ball inserts comprising two coaxial hollow cylinders of elastomer.

[0011] Fig. 1 illustrates finger inserts 11 of the preferred embodiment mounted in the finger holes 14 of a bowling ball 10. The preferred embodiment of an auto adjusting finger insert 11 is further illustrated in Figures 2 to 4. The insert 11 comprises a relatively soft plastic cylinder 13. The cylinder 13 is preferably made of 90 shore polyurethane molded into shape, and may be a harder polyurethane to suit the taste, e.g., of pro players.

[0012] One end (Fig. 3) of the cylinder 13 is circular, while the other end (Fig. 4) has a flat entry way portion 14, which is ramped or tapered and blended into the circular contour of the cylinder 13. The flat portion accommodates the underside of a finger as the finger is inserted into the device 11.

[0013] The cylinder 13 further includes three vertically disposed ridges 15, 17, 19 formed on its outer surface 21. The three ridges 15, 17, 19 are preferably spaced around the circumference such that respective radii r_2 , r_3 , r_4 lying 120 degrees apart bisect the base ridge 15 and lie adjacent the outer edge 18, 20 of each of the side ridges 17, 19. The

faces of each of the ridges 15, 17, 19 which contact the finger hole 14 lie tangent to circle 22, which is of the same diameter as the hole 14. The sides of the ridges 15, 17, 19 lie parallel to the central axis of the cylinder 13.

[0014] The first ridge 15 preferably extends the entire length of the cylinder 13, while the other two ridges 17, 19 are preferably of an equal length which is shorter than the full length of the cylinder 13. For example, for an insert whose height "h₁" is 1 1/4 inches, the length "h₂" of the shorter ridges may be 3/4". A summary of illustrative dimensions of such an embodiment in inches are:

$$\begin{array}{llll}
 h_1 & = & 1\frac{1}{4} & w_2, w_3 = \frac{1}{4} \\
 h_2 & = & \frac{3}{4} & t = \frac{1}{16} \\
 D & = & 31/32 & w_1 = \frac{1}{2}
 \end{array}$$

[0015] Such dimensions are illustrative only and may be varied in different embodiments.

[0016] Various sized inserts will typically be fabricated to accommodate different finger sizes. The outside diameter D of 31/32" may remain the same, while the radial thickness of the ridges 15, 17, 19 is varied to permit the radius R₁ of the cylinder 13 to vary to accommodate various finger sizes.

[0017] In operation, an insert 15 may be glued into a bowling ball hole 14, after which a bowler inserts a finger into the insert 15. Air spaces formed between the circumference of the bowling ball finger hole 14 and the circumference of the cylinder 14, as well as the pliability of the plastic material, function to accommodate variations in the finger size of a particular individual.